

**PLEASE AMEND THIS APPLICATION AS FOLLOWS:**

**In The Title:**

Change the title of the invention to:

-- COMPOSITION EMPLOYING CHEMICALLY LABELED OLIGONUCLEOTIDE  
OR POLYNUCLEOTIDE, AND APPARATUS AND ARRAYS  
CONTAINING A PLURALITY OF SAME -- .

**In The Specification:**

Page 18, 8th line from the bottom of the page, change "Triton X-100"  
to -- TRITON X-100 (octoxymol) -- .

Page 24, lines 9-10, change "Triton X-100" to -- TRITON X-100 (octoxymol) -- .

Page 24, line 22, change "Triton X-100" to -- TRITON X-100 (octoxymol) -- .

Page 24, line 30, "Triton X-100" to -- TRITON X-100 (octoxymol) -- .

Page 25, line 2, change "Triton X-100" to -- TRITON X-100 (octoxymol) -- .

**In The Claims:**

Amend claims 48, 55, 63, 77, 80, 86, 100, 102, 109, 118 and 132 as follows:

48. (Amended) A composition of matter comprising:

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[a] a transparent non-porous or translucent non-porous system [capable  
of retaining or] containing a fluid or solution, which system comprises:

- (i) a solid support; and
- (ii) a double-stranded oligonucleotide or polynucleotide which is  
directly or indirectly fixed or immobilized to said solid support wherein  
one of the strands [comprises] produces a soluble signal generated or  
generatable from a chemical label or labels which comprise a signalling  
moiety or moieties [which are capable of generating a soluble signal;  
and

(b) fluid or solution].

C<sup>2</sup> 55. (Amended) The composition according to claim [53] 133, wherein said [non-porous polymeric material] plastic or plastic-coated surface is selected from the group consisting of polyethylene, polypropylene, polystyrene and epoxy.

C<sup>3</sup> 63. (Amended) The composition according to claim 48, wherein said double-stranded oligonucleotide or polynucleotide is selected from the group consisting of DNA, RNA[,] and a DNA-RNA hybrid, or a combination of any of the foregoing [and a DNA-RNA chimera].

77. (Amended) A composition of matter comprising:

C<sup>4</sup> [(a)] a transparent non-porous or translucent non-porous system [capable of retaining or] containing a fluid or solution, which system comprises:

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a double-stranded oligonucleotide or polynucleotide which is directly or indirectly fixed or immobilized to said system wherein one of the strands [comprises] produces a soluble signal generated or generatable from a chemical label or labels which comprise a signalling moiety or moieties [which are capable of generating a soluble signal; and

(b) fluid or solution].

C<sup>5</sup> 80. (Amended) The composition according to claim [78] 134, wherein said [non-porous polymeric material] plastic or plastic-coated surface is selected from the group consisting of polyethylene, polypropylene, polystyrene and epoxy.

C<sup>6</sup> 86. (Amended) The composition according to claim 48, wherein said double-stranded oligonucleotide or polynucleotide is selected from the group consisting of DNA, RNA[,] and a DNA-RNA hybrid, or a combination of any of the foregoing [and a DNA-RNA chimera].

100. (Amended) An apparatus comprising:

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- 1) one or more solution containing means, each comprising a transparent non-porous or translucent non-porous device;
  - 2) means for forming a fixed or immobilized double-stranded oligonucleotide or polynucleotide hybrid to a solid support in said device, said hybrid comprising a chemical label or labels attached to one strand of said hybrid, said label or labels comprising a signalling moiety or moieties which are capable of generating a soluble signal; and
  - 3) means for producing a soluble signal generatable or generated from said chemical label or labels which comprise said signalling moiety or moieties [generating means].

102. (Amended) A transparent non-porous or translucent non-porous system [capable of retaining or] containing a fluid or solution, which system comprises:

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- (i) an oligonucleotide or polynucleotide [capable of hybridizing] hybridized or hybridizable to an oligo- polynucleotide sequence, said oligonucleotide or polynucleotide [comprising] in double-stranded form producing a soluble signal generated or generatable from a chemical label or labels which comprise a signalling moiety or moieties [which are capable of generating a soluble signal]; and
  - (ii) a solid support [capable of] having directly or indirectly [fixing or immobilizing] fixed or immobilized thereto said oligo- or polynucleotide sequence or said oligonucleotide or polynucleotide (i); and
  - (iii) fluid or solution].

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109. (Amended) The composition according to claim [107] 135, wherein said [non-porous polymeric material] plastic or plastic-coated surface is selected from the group consisting of polyethylene, polypropylene, polystyrene and epoxy.

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118. (Amended) The composition according to claim 102, wherein said double-stranded oligonucleotide or polynucleotide (i) or said oligo- or polynucleotide is selected from the group consisting of DNA, RNA[,] and a DNA-RNA hybrid, or a combination of any of the foregoing [and a DNA-RNA chimera].

132. (Amended) An apparatus comprising:

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- 1) means for retaining or containing a fluid or solution;
  - 2) one or more transparent non-porous or translucent non-porous devices, each comprising a solid support;
  - 3) means for forming a fixed or immobilized oligonucleotide or polynucleotide hybrid to said solid support, said hybrid comprising a chemical label or labels attached to said hybrid, said label or labels further comprising a signalling moiety or moieties capable of generating a soluble signal;
  - 4) means for quantifying or detecting a soluble signal generatable or generated from said chemical label or labels comprising said signalling moiety or moieties; and
  - 5) fluid or solution.

Cancel claim 101.

Add new claims 133-182 as follows:

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-- 133. (NEW) The composition of claims 54 or 79, wherein said glass or glass-coated surface comprises porous glass. --

-- 134. (NEW) The system of claim 108, wherein said glass or glass-coated surface comprises porous glass. --

-- 135. (NEW) The composition of claim 53, wherein said non-porous polymeric material comprises plastic or a plastic-coated surface. --

-- 136. (NEW) The composition of claim 78, wherein said non-porous polymeric material comprises plastic or a plastic-coated surface. --

-- 137. (NEW) The composition of claim 107, wherein said non-porous polymeric material comprises plastic or a plastic-coated surface. --

-- 138. (NEW) The composition of claim 48, wherein said system is selected from the group consisting of a well, a tube, a cuvette and an apparatus that comprises a plurality of said wells, tubes or cuvettes, and said solid support is selected from the group consisting of dextran, cellulose, nitrocellulose, glass or a glass-coated surface and plastic or a plastic-coated surface. --

-- 139. (NEW) The system of claim 102, wherein said system is selected from the group consisting of a well, a tube, a cuvette and an apparatus that comprises a plurality of said wells, tubes or cuvettes, and said solid support is selected from the group consisting of dextran, cellulose, nitrocellulose, glass or a glass-coated surface and plastic or a plastic-coated surface. --

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cont  
-- 140. (NEW) The composition of claim 48, wherein said system functions as the solid support. --

-- 141. (NEW) The composition of claim 77, wherein said system functions as a solid support. --

-- 142. (NEW) The system of claim 102, wherein said system functions as the solid support. --

-- 143. (NEW) An array of substrate surfaces, said array comprising a plurality of nucleic acid strands fixed or immobilized to said substrate surfaces. --

-- 144. (NEW) The array of claim 143, wherein each said substrate surfaces has been treated to enhance fixation or immobilization to the surface. --

-- 145. (NEW) The array of claim 144, wherein said treatment is carried out using an amine or amide compound. --

-- 146. (NEW) The array of claim 145, wherein said amine compound is selected from the group consisting of duodecylamine (DDA), polylysine (PPL), aminopropyltriethoxysilane or a combination of any of the foregoing. --

-- 147. (NEW) The array of claim 145, wherein said amide compound comprises formamide. --

-- 148. (NEW) The array of claim 144, wherein said treatment is carried out using a dispersive compound. --

-- 149. (NEW) The array of claim 148, wherein said dispersive compound comprises ammonium acetate. --

-- 150. (NEW) The array of claim 144, wherein said treatment is carried out using an epoxy compound. --

-- 151. (NEW) The array of claim 144, wherein said treatment is carried out using an amine compound and an epoxy compound. --

-- 152. (NEW) The array of any of claims 143, 144, 145, 146, 147, 148, 149, 150 or 151, wherein said substrate surface is porous or non-porous. --

-- 153. (NEW) The array of claim 152, wherein said porous substrate surface comprises a porous polymeric material. --

-- 154. (NEW) The array of claim 153, wherein said polymeric material is selected from the group consisting of dextran, cellulose and nitrocellulose. --

-- 155. (NEW) The array of claim 152, wherein said non-porous substrate surface is selected from the group consisting of siliceous matter and non-porous polymeric material. --

-- 156. (NEW) The array of claim 155, wherein said siliceous matter comprises glass or a glass-coated surface. --

-- 157. (NEW) The array of claim 156, wherein said glass or glass-coated surface comprises porous glass. --

-- 158. (NEW) The array of claim 156, wherein said glass or glass-coated surface is selected from the group consisting of wells, depressions, tubes, cuvettes and an apparatus that comprises a plurality of said wells, tubes or cuvettes. --

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-- 159. (NEW) The array of claim 158, wherein said wells comprise microtiter wells. --

-- 160. (NEW) The array of claim 155, wherein said non-porous polymeric material comprises a plastic. --

-- 161. (NEW) The array of claim 160, wherein said plastic is selected from the group consisting of polyethylene, polypropylene, polystyrene and epoxy. --

C12 -- 162. (NEW) The array of claim 143, wherein said nucleic acid strands are fixed or immobilized directly or indirectly to said substrate surface. --

-- 163. (NEW) The array of claim 143, wherein said nucleic acid strands are single-stranded or double-stranded. --

-- 164. (NEW) The array of claim 163, wherein said nucleic acid strands are selected from the group consisting of DNA and RNA, a DNA-RNA hybrid, or combinations thereof. --

-- 165. (NEW) The array of claim 164, wherein said nucleic acid strands comprise nucleic acid probe sequences complementary to a target nucleic acid sequence of interest. --

-- 166. (NEW) The array of claim 143, wherein said nucleic acid probe sequences are unlabeled. --

-- 167. (NEW) The array of claim 163, wherein at least one of said double-stranded nucleic acid strands produces a quantifiable or detectable soluble signal generated or generatable from a chemical label or labels comprising a signaling moiety or moieties. --

-- 168. (NEW) The array of claim 167, wherein said label or labels are the signaling moiety or moieties. --

-- 169. (NEW) The array of claim 168, wherein the signaling moiety or moieties of said label or labels are directly or indirectly attached thereto. --

-- 170. (NEW) The array of claim 167, wherein said labeled nucleic acid strand comprises a nucleic acid sequence sought to be identified or sequenced. --

-- 171. (NEW) The array of claim 163, wherein said label or labels are attached directly or indirectly to one or more nucleotides in said nucleic acid strand. --

-- 172. (NEW) The array of claim 163, wherein said label or labels are indirectly attached to one or more nucleotides through the formation of a complex. --

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-- 173. (NEW) The array of claim 172, wherein said complex is selected from the group consisting of biotin and avidin, biotin and streptavidin, a sugar and a lectin, and an antigen and an antibody. --

-- 174. (NEW) The array of claim 167, wherein said label or labels are indirectly attached to one or more nucleotides through a bridging moiety. --

-- 175. (NEW) The array of claim 167, wherein said signaling moiety or moieties are selected from the group consisting of an enzyme, a co-enzyme, a chelating agent, a chromagen, a fluorescent agent and a chemiluminescent agent. --

-- 176. (NEW) The array of claim 167, wherein said soluble signal is generated or generatable from a chromagen, or by fluorescence or chemiluminescence. --

-- 177. (NEW) The array of claim 167, wherein said soluble signal is quantifiable or detectable by a technique selected from the group consisting of photometric techniques and colorimetric techniques. --

-- 178. (NEW) The array of claim 177, wherein said photometric techniques comprise spectrophotometric techniques. --

-- 179. (NEW) The array of claim 167, wherein said soluble signal is selected from the group consisting of a colored product, a chemiluminescent product and a fluorescent product. --



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-- 180. (NEW) An apparatus which comprises the array of any of claims 143 to 151, or 153 to 179, wherein said substrate surface is porous or non-porous. --

-- 181. (NEW) A transparent non-porous or translucent non-porous system capable of retaining or containing a fluid or solution, which system comprises the array of any of claims 143 to 151, or 153 to 179, wherein said substrate surface is porous or non-porous. --

-- 182. (NEW) The system of claim 181, wherein said substrate surface is contained within the transparent non-porous or translucent non-porous system. --

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